TCIA VOICE OF TREE CARE
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The TreeWorker

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Things to Consider When Deciding What to Plant Where

Container-grown plants and balled and burlapped (B&B) plants with well-developed root systems can be planted throughout the year, if the ground is not frozen. However, most B&B plants are dug and planted during the cooler months after leaf drop. Fall planting allows the carbohydrates produced during the previous growing season to be directed to root growth, since there is little demand from the top. This is a broad guideline and is more dependent on local temperatures and climate than a hard and fast rule.

Before you plant, check the entire planting site for the following:

- **Wind direction** – how will the prevailing winds affect your new planting? Will it need to be staked? Will drying winds affect the tree's irrigation regime?
- **Existing structures** – will the planting site provide enough root space and above ground growing space for the mature species size?
- **Existing plants** – are there existing plants that may compete for tree resources at the new planting site?
- **Drainage patterns** – does the lay of the land allow for drainage of rainfall and seasonal storm runoff? A percolation test of the planting hole will help determine the immediate planting site drainage rates.

Percolation test – don't forget this important step.

... continued on page 2

IN THIS ISSUE...

1 Things to Consider
1 Calculating Incidence Rate
4 Important Work: The Ground Operator Specialist
6 Don't Get Struck-By the Moving Drop Zone
7 Mr. Safety
8 Arborist Quiz

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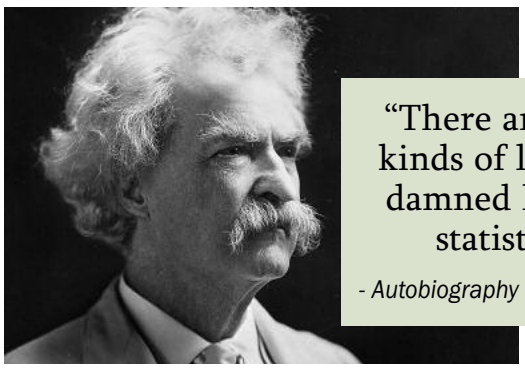
Calculating Incidence Rate



"There are three kinds of lies: lies, damned lies and statistics."

- Autobiography of Mark Twain

An incidence (or incident) rate is the number of recordable "events," usually expressed for the equivalent of 100 full-time workers over a given period of time, usually one year.

The event can be whatever you want to track and compare. For instance, you could calculate an incidence rate for a leading indicator like near misses (close calls) if you kept track of them. Let's come back to that in a minute.

Typically, incidence rates are used to track recordable injuries and illnesses. A recordable injury is one that requires medical attention beyond first aid in the field.

To evaluate your firm's – or a crew's – injury and illness experience over time or to com-

... continued on page 3

Things to Consider When Deciding What to Plant Where

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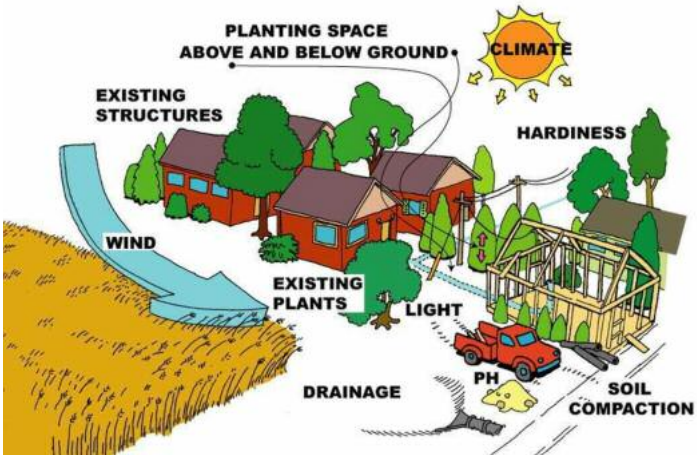
- **Sunlight availability or exposure** – how does the sun affect the new planting site throughout the day? The year?
- **Soil** – make sure you test the soil before planting for pH, available soil biology and compaction. The wrong balance of any of these soil components can hinder the newly planted tree.

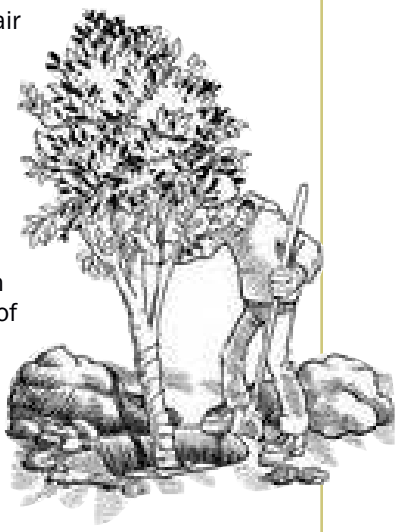


- **Hardiness zones** – plant tree species that are compatible to the cold hardiness zone of the area.
- **Climate** – planting a tropical tree in a temperate climate may cause the tree planting to fail.
- **Planting under a utility** – trees with a mature height of 25 feet or less should be selected for planting no closer than 25 feet to electrical utilities (both overhead and underground).

Time to dig the hole. Shave and remove the grass and weeds from the planting site. Dig the hole at least three times the diameter of the rootball or container of the tree. Make sure the soil on the sides of the hole is loose. The depth of the hole can't be deeper than the bottom of the rootball to the bottom of the trunk flare. You will have to carefully remove soil from the top of the rootball to find the bottom of the trunk flare. The soil the rootball sits on needs to be undisturbed to prevent the tree settling below grade over time.

Before placing the tree in the ground, make sure it is facing the same compass orientation from where it originated (if that is known). Remove the packaging materials from at least the upper third of the rootball. Loosen and straighten the roots on the outside and bottom of the rootball as much as possible. You can prune girdling or circling roots to either a point where they are perpendicular to the rootball or to a point where they can be straightened and placed perpendicular to the rootball. The idea is to keep roots from circling back into the rootball. Keep the roots moist during this process to avoid drying out.

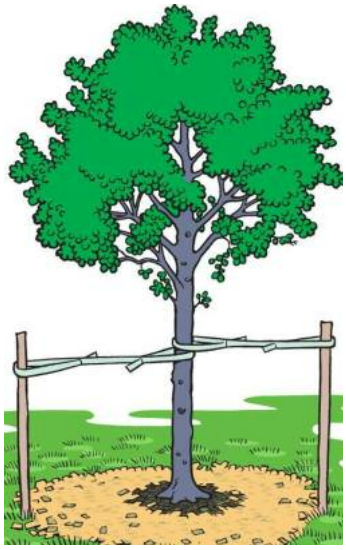
Hold the tree so the trunk and central leader are in an upright position. Place the backfill (soil you removed from digging the hole) around the rootball so the tree stands upright. Install it and settle it in layers to reduce air pockets and future tree settling, but don't compact the soil. Fill the entire hole with existing backfill soil. Do not place soil on top of the rootball. The bottom of the trunk flare must be at or slightly higher than the existing grade.



Build a berm of soil about 3" high and 7" wide at the outside edge of the rootball to help retain water in the rootzone. Add water to the rootzone and surrounding soil to bring the rootzone to field capacity, then cover the new planting site with about 4" of composted wood chip mulch.

Water the newly planted tree by checking soil moisture. By monitoring temperature and humidity you will learn how long the soil retains moisture and when it is time to add more water. Avoid letting the rootball and surrounding area dry out. This is critical to the establishment of a newly planted tree.

Stake It So It Makes It



A couple of reasons why a newly planted tree would need staking would be if the planting site is exceptionally windy or the tree is bare-root. Stake for stability against wind until the tree is established.

- If trees must be staked, place stakes as low as possible but no higher than two-thirds the height of the tree.
- Materials used to tie the tree to the stake must be flexible and allow for movement all the way down to the ground so that trunk taper develops correctly.
- Make sure the staking materials do not touch or interfere with branches and branch development.
- Remove all staking material after roots have established. This can be as early as a few months, but should be no longer than one growing season.
- Materials used for permanent tree protection should never be attached to the tree.

Calculating Incidence Rate

... *continued from page 1*

pare your firm's experience with that of your industry as a whole, you need to compute an incidence rate. Because a specific number of workers and a specific period of time are involved, these rates can help you identify problems in your workplace and/or progress you may have made in preventing work-related injuries.

Here is the basic incidence rate (IR) formula:

IR = A (200,000)/N (2,000)

In the formula, **A** is the number of recordable incidents or accidents, in one year and **N** is the number of full-time employees. This formula uses a standard value of 2,000 hours worked per employee in a year. If you are going to compare your experience to other tree companies or workers in other industries, it is best to use this standard value.

On the other hand, if you want to do intra-company comparisons, like this year compared to last year or Crew A compared to Crew B, your statistic can be much more meaningful if you use the actual hours worked with this variation of the formula:

IR = A (200,000)/Actual Hours Worked

Whatever you do, be consistent with the formula you use or you run the risk of proving that Mark Twain was right!

If you choose to compare a leading indicator of accidents such as close calls or safety infractions, you could end up with a much more revealing statistic. Why? Close calls occur more frequently than accidents, and unsafe acts occur more frequently than close calls. Therefore, if you compare one of these "predictors" of accidents, you will have more information to work with.

Close calls occur more frequently than accidents.

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Important Work: The Ground Operations Specialist

A well-trained, cooperative tree crew must approach each job-site and its peculiarities as a team – not just heaving all the responsibility of safety and site inspection onto one person. All crew members should complete a site walk-through as a group and bring all concerns and ideas to the job briefing.

Inspecting the Site

When you arrive at a job site, inspect the site in order to create a work plan and set up the job properly.

Carefully look at the property layout. Look for areas to avoid and areas where work can be performed safely. Look for:

- terrain hazards such as sink holes, slopes, hills, rocks, muddy areas
- plant hazards such as briars, poisonous plants, fallen trees, spring poles
- weather hazards such as snow, ice, wet areas
- access from the road to trees, stumps and/or landscape plants

Identifying Work Site Hazards

After you finish inspecting the site, identify the work site hazards that might affect your work plan. Look for tree hazards.

Inspect the trees for:

- hangers, broken or dead branches
- cracks, cankers, hollows and other visible signs of tree failure/decay
- signs of internal decay, such as conk-type fungus on the root flare or trunk
- signs of root rot such as mushrooms, loose bark on root flare and roots, fungal hyphae growth under loose bark (looks like "black shoe strings")
- signs of a "falling" tree such as shear cracks, ground heaving on one side, leaning trees

Look for signs of construction injury on trees. Always ask the client for the tree's history and inspect for:

- trees with no root flare (i.e., looks like a telephone pole), indicating a grade fill that might have killed roots
- new driveways, foundations, walkways, underground utilities, or anything that might have required roots to be cut for installation

Look for signs of animals that bite or sting, such as:

- paper wasp nests / bee hives
- buzzing noise, indicating a bee hive or swarms
- tree hollows or visible nests that could house squirrels, raccoons or other animals

Look for electrical hazards by locating conductors and inspecting for electrocution hazards, such as:

- branches contacting conductors
- pitted or blackened areas on branches caused by electrical arcing when wind-blown branches intermittently contact conductors
- branches that might contact a conductor if a climber's weight or rigging load is placed on them
- vines growing up telephone poles, guy wires and service drops
- underground utility services

Look for "slips, trips and falls" work-site hazards, such as:

- heavy undergrowth in the work area
- slopes in the work area
- steps
- truck, chipper, other company equipment

Look for "struck-by" work-site hazards, such as:

- restricted work areas/landing zones for dropping limbs and cutting brush
- restricted areas for dragging and chipping brush
- slopes in the bucking area that might allow a log to roll
- heavy undergrowth in the landing zone that could create spring poles

Creating a Work Plan

The work plan determines who does what, when and how. The work plan is created to accomplish the tasks on the work order. The work plan is explained to tree workers during a job briefing so all employees understand what they need to do. First, read and understand the work order. Be certain you understand exactly what is to be done to every tree. If you don't understand the work specifications, stop and contact your supervisor. What if you find something unexpected on the work order and/or at the job site? In general, you need to inform your supervisor. Always consult your supervisor if the discovery affects your ability to complete the job. Report any other discoveries, such as a tree hazard on a tree not being worked on, to your immediate supervisor.

Your Supervisor Will Create a Work Plan

The work plan:

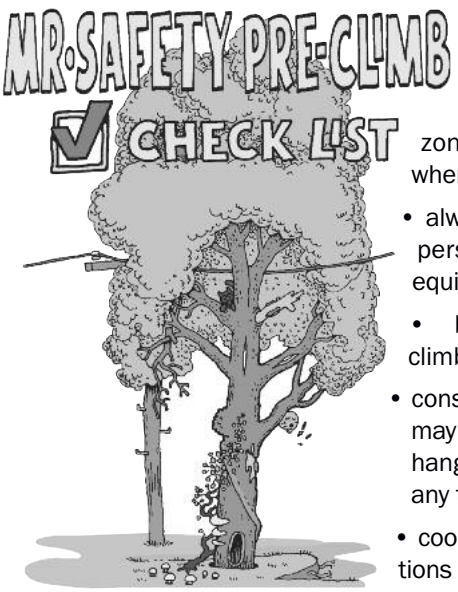
- addresses what work is to be done
- addresses how hazards will be minimized
- assigns personnel to perform the tasks
- often assigns responsibility to a leader to see that the work tasks are completed

A written work plan is encouraged for larger jobs. Don't forget to consider how emergencies and aerial rescues will be handled at the site.

Reduce slip, trip and fall hazards with planning:

- have a good "branch management" system to avoid debris pileups in the work area
- avoid working on slopes when there are other alternatives
- keep vehicles and chippers close to the work area when possible to limit distance for dragging brush
- avoid or move work-site trip hazards (holes, brush, logs, tools)
- assign a "hand tool area/tarp" at the job site for tools that are not being used at the moment but will be needed again
- stow tools on the truck when no longer needed

Reduce struck-by hazards with planning:



- establish the landing zone at the job briefing
- clean the landing zone of underbrush when possible
- always wear appropriate personal protective equipment (PPE)
- be aware of the climber's activities
- consider that a climber may drop a limb, branch, hanger, or hand tool at any time
- coordinate ground operations with climbing operations by communicating your presence to climbers with a command/response system whenever you enter the "landing zone"
- be certain all personnel understand their role and are properly positioned when felling
- always give a warning before commencing the back cut and be sure fellow workers are clear

Protecting Property

As you inspect the site, note what you will need to protect.

Look for:

- utility services such as poles, conductors, service drops, meters, well casings, underground sprinkler system
- property such as houses, garages, sheds, boats, cars, outdoor grills
- hardscaping such as fences, walkways, driveways, pools, decks, patios
- landscaping
- wet soil/mud that might become compacted
- private septic systems

Protection can be provided in many different ways, for example:

- move the object when possible
- use rigging lines/devices to control and direct the descent of limbs and tree sections
- flag or place cones over sprinkler heads
- use protection, such as hinged plywood for shrubs
- avoid wet/muddy areas to prevent soil compaction
- avoid driving or moving equipment over private septic systems

If you will be digging or excavating for any reason, the utilities should be marked. Make sure to locate the specific markings for each service when possible.

Job Briefing

Your supervisor tells you what the work plan is by conducting a job briefing. You participate in a job briefing before starting work so you understand what is to be done.

The job briefing tells you the:

- job steps
- potential hazards
- specific work assignments – "who does what"
- action steps needed to avert the hazards
- PPE requirements

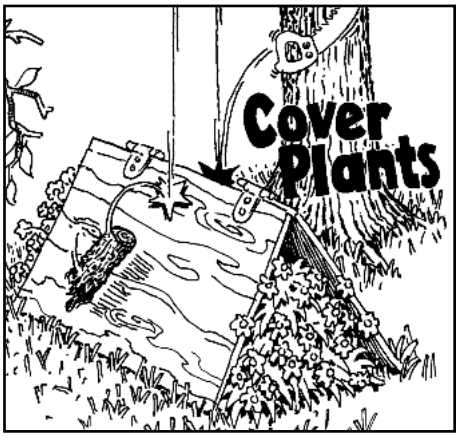
Ask questions if you don't understand any part of the job briefing or how to perform the job safely.

Be sure your questions are answered thoroughly and that you understand the answers. If you find or create a new hazard during work activities, tell your immediate supervisor and alert crew members.

Preventing emergencies and being prepared when one does occur is key.

Learn how to recognize and prevent:

- reactions and diseases from animal bites and stings



- symptoms of heat illness
- symptoms of hypothermia
- symptoms of frostbite
- reactions from contact with poisonous plants

Recognize potential hazards and the signs of health problems before an emergency develops.

Don't Get "Struck-by" The Moving Drop Zone

Common sense and communication are key when avoiding "struck-by" injuries. The most common "struck-by" injuries occur when a ground worker is hit by falling limbs, branches, or tools. Other "struck-by" injuries occur when:

- tree workers are hit by falling objects;
- hangers are inadvertently dislodged;
- falling trees hit crew members;
- ground workers cut spring poles or branches bent under tension without taking precautions.

Examples of Preventable Struck-By Incidents

1. A small tree company was removing a tree in the backyard of a private residence. The climber had removed all of the limbs and began to cut sections of wood and let them drop to the ground. A ground worker walked into the drop zone while a 4-foot long piece of wood weighing approximately 50 pounds was being dropped. It struck him on the head; he died several hours later in the hospital.
2. Two tree workers were removing a tree using a tag line to pull the tree over. The tree that was being removed struck an adjacent dead tree. A large portion of the dead tree broke off and struck the worker who was pulling on the tag line.
3. A 19-year-old ground worker was killed when he was struck by a branch that had previously been cut by the climber. The hanger had been in the tree for some time before it became dislodged and fell on the worker.

When dropping limbs or branches, climbers must always assume that ground workers could be under the canopy of the tree. Verbal warnings must be given when necessary. When possible, coordinate ground operations with climbing operations. Example: Periods when climbers are repositioning themselves are good times for ground workers to remove brush from under the canopy.

Ground workers must always be aware of climber and other crew member activity. They must assume that a branch, handsaw, or other tool could slip out of the hands of a climber at any time.

In addition, all crew members should be wary of hangers. They may dislodge at unexpected times as a result of climbing, pruning, or removal operations.

What else can you do to prevent injuries?

Action Steps

1. When working on the ground:

- Always wear personal protective equipment, especially your helmet.
- Always be aware of the climber's activities.
- Always consider that a climber may accidentally drop a limb, branch, hanger, or hand tool at any time.
- When possible, coordinate ground operations with climbing operations.
- Always communicate your presence under the canopy to climbers.
- Always be wary of limbs or branches under tension when limbing.

Common Job Steps Affected by "Struck-By" Injuries	Potential Hazards/Risks
Pruning and removal operations	Falling tree, limb, branch, or hanger
Limbing, bucking	Falling hand tools
Brush removal, chipping, and stump grinding	Spring poles
Cabling and bracing operations	Branches under tension

2. When working aloft:

- be aware of ground worker activity;
- be aware of other climbers' activity;
- always wear personal protective equipment;
- when more than one climber is in a tree, work on different sides of the tree;
- when necessary, give verbal warnings, such as "timber" or "headache" before dropping a limb or branch;
- always place your handsaw in a saddle scabbard, when you are not using it.

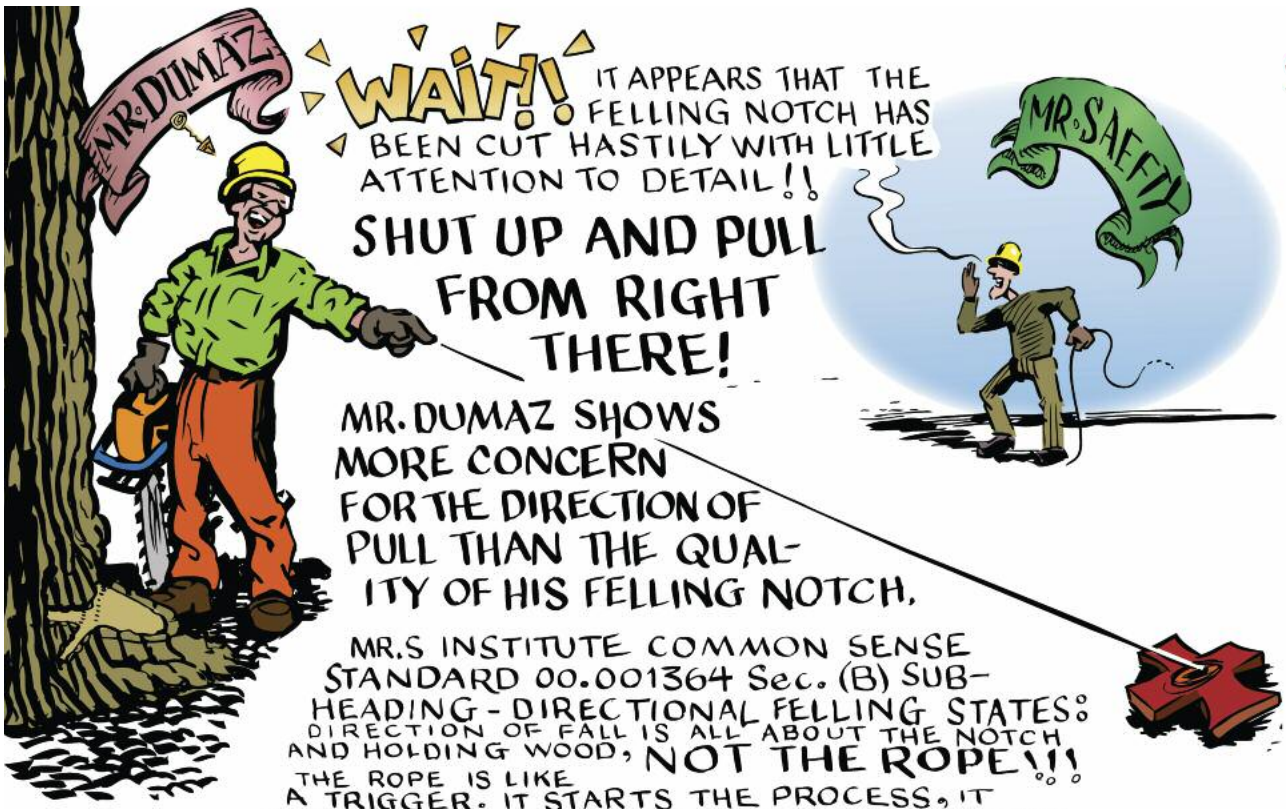
3. When removing a tree:

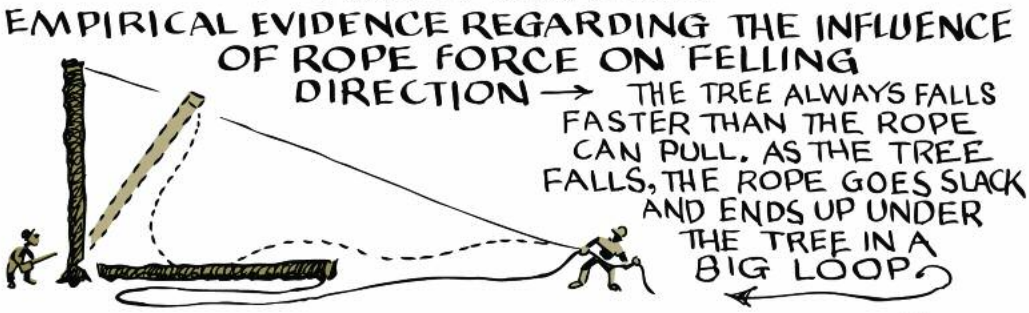
- be certain all personnel are out of range of the tree;
- always give a verbal warning before commencing the back cut.

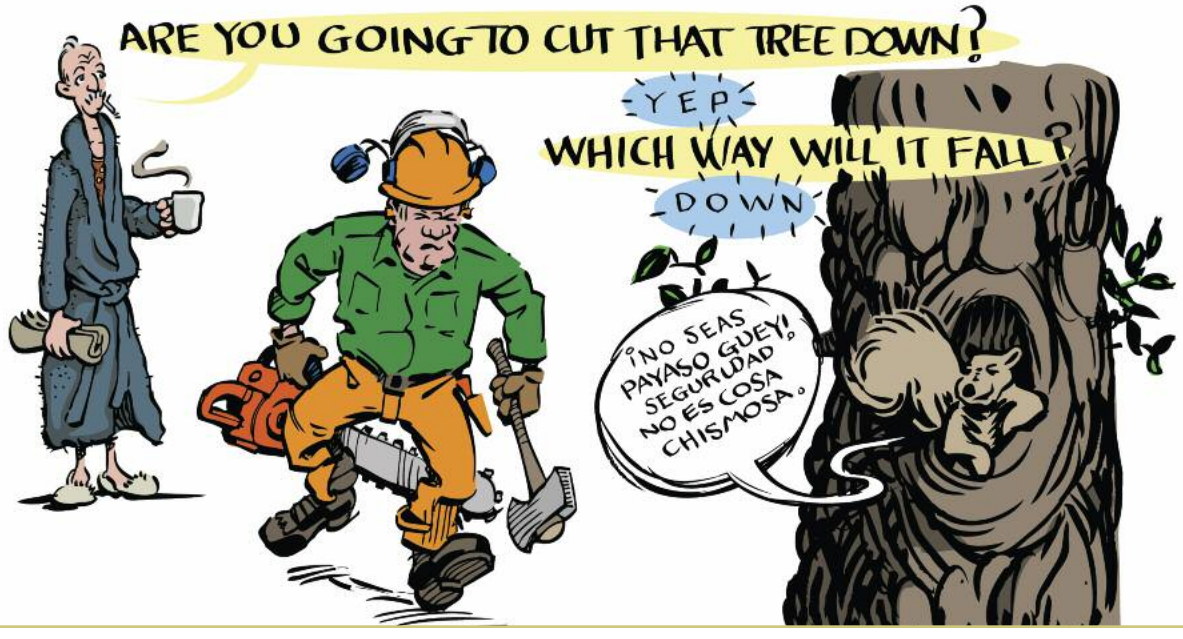
What else can you do to prevent injuries?

MR. SAFETY

by Bryan Kotwica


MR. DUMAZ
WAIT!
IT APPEARS THAT THE FELLING NOTCH HAS BEEN CUT HASTILY WITH LITTLE ATTENTION TO DETAIL!!
SHUT UP AND PULL FROM RIGHT THERE!
MR. SAFETY
MR. DUMAZ SHOWS MORE CONCERN FOR THE DIRECTION OF PULL THAN THE QUALITY OF HIS FELLING NOTCH.
MR.S INSTITUTE COMMON SENSE STANDARD 00.001364 Sec. (B) SUB-HEADING - DIRECTIONAL FELLING STATES: DIRECTION OF FALL IS ALL ABOUT THE NOTCH AND HOLDING WOOD, NOT THE ROPE!!!
THE ROPE IS LIKE A TRIGGER. IT STARTS THE PROCESS, IT DOESN'T GUIDE THE TREE DOWN ANY MORE THAN A TRIGGER AIMS A GUN.


EMPIRICAL EVIDENCE REGARDING THE INFLUENCE OF ROPE FORCE ON FELLING DIRECTION →
THE TREE ALWAYS FALLS FASTER THAN THE ROPE CAN PULL. AS THE TREE FALLS, THE ROPE GOES SLACK AND ENDS UP UNDER THE TREE IN A BIG LOOP.



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ARBORIST QUIZ

1. Container grown plants with well-developed root systems can be planted:

a. if the ground is frozen
b. if the roots are frozen
c. throughout the year
d. with no scheduled after care

2. Incidence rates are typically used:

a. when calculating insurance rates
b. to track recordable illnesses and injuries
c. if accidents are not being recorded
d. for most accidents except slips, trips and falls

3. If trees must be staked, place the stakes as low as possible:

a. but no higher than two-thirds the height of the tree
b. but no higher than one-third the height of the tree
c. and leave them in place for up to 5 years
d. but no higher than one-half the height of the tree

4. The work plan:

a. determines the estimated incidence rate possible at the job site
b. prevents any unexpected incidents
c. is created to accomplish the tasks on the work order
d. does not include property protection

5. When possible, coordinate ground operations with:

a. hands-free radio communication
b. the customer's expectations
c. online work plans
d. climbing operations

1. c, 2. b, 3. a, 4. c, 5. d